

Sex Reassignment Surgery: Historical, Bioethical, and Theoretical Issues

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The reported 68%–86% overall success rates for sex reassignment surgery must be viewed cautiously; the lack of long-term follow-up studies makes these statistics misleading. There is evidence suggesting that some gender dysphoric patients benefit primarily from sex reassignment surgery. Most such patients, however, are secondary transsexuals who can benefit from various modes of psychotherapy. Sex reassignment surgery should only be considered as the last resort for a highly select group of diagnosed gender dysphoric patients. As physicians learn new ways to diagnose and treat transsexualism, either sex reassignment surgery will be abandoned as a routine treatment modality or new predictive variables for choosing suitable patients for sex reassignment surgery will be established.

Few psychiatric issues have stirred up as much controversy and emotional turmoil as transsexualism and sex reassignment surgery. Those clinicians who espouse sex reassignment surgery as a legitimate form of treatment view it either as a palliative or a cure of the gender dysphoric patient's intense social-psychological suffering. Most clinicians who recommend sex reassignment surgery as the treatment of choice also tend to believe that psychotherapy is useless with gender dysphoric patients. In support of their view, they cite several positive follow-up studies on postoperative transsexuals (1–3) and the American Medical Association Commission on Human Sexuality's 1972 sanction of sex reassignment surgery as the treatment of choice for diagnosed transsexuals (4). Moreover, a recent book, *Controversy in Psychiatry*, mentioned sex reassignment surgery as a viable treatment modality for selected patients in a medical center (5).

On the other hand, those clinicians who consider sex reassignment surgery as an illegitimate form of medical-surgical treatment usually characterize it as mutilative and antitherapeutic. They point to the complex psychological, medical, legal, bioethical, and political issues that are neglected or bypassed by sex reassignment surgery procedures. They argue that sex

reassignment surgery leads to mistreatment and mismanagement of the gender dysphoric patient. In one study a majority of the 300 physicians queried opposed sex reassignment surgery for transsexuals (6). In support of their view, clinicians cite studies indicating that various modes of psychotherapy can successfully stabilize the gender dysphoric patient short of sex reassignment surgery (7–9). These studies suggest that some clinicians may have prematurely accepted Hertz and associates' dictum that "transvestism [now called transsexualism] resists psychiatric treatment" (10).

The debate among mental health practitioners has recently been fueled by the closing of the Johns Hopkins Gender Identity Clinic (11) and by several studies supporting sex reassignment surgery (reference 12 and an unpublished study by S. Satterfield). Arguments both for and against sex reassignment surgery, however, are based more on rhetoric than on hard evidence. Those who believe sex reassignment surgery is beneficial for certain patients must acknowledge the lack of hard empirical evidence supporting their views and the lack of even acceptable diagnostic criteria for selecting good candidates for sex reassignment surgery. Those who argue against sex reassignment surgery must account for the reported widespread patient satisfaction with the procedures and evidence of resulting positive life changes. While *DSM-III* addresses some of the confusing diagnostic issues among the gender identity disorders, the new criteria do not deal with treatment issues. In addition, there are no standards for the medical-psychological care of patients with profound gender dysphoria (transsexualism). As more and more patients request sex reassignment surgery, the issue of appropriate treatment for them becomes central. Indeed, ever since the sensationalism of the Christine Jorgenson case (13), large numbers of patients have requested information regarding sex change (14, 15). A combination of several factors—the availability of surgery, media exposure, the existence of national and international referral centers and information sources, and the establishment of many gender identity clinics—has made it necessary for clinicians to take a stand for or against sex reassignment surgery.

Of the currently estimated 30,000 transsexuals, as many as 10,000 may be residing in the United States (16). One researcher, Prince (17), has even suggested that the number of requests for sex reassignment

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surgery has reached epidemic proportions. Indeed, a 1977 report estimated that over 1,000 surgical procedures would be performed in the United States in 1980 (16). As long as there are no universally accepted standards of care, hospitals can either prohibit sex reassignment surgery or make it routinely available to gender dysphoric patients on a fee-for-service basis. If sex reassignment surgery becomes a Medicaid-subsidized procedure, it could be performed on many nontranssexual patients with gender dysphoria, who may later regret their decisions. While all practitioners should be concerned about the unrestricted use of sex reassignment surgery, it may be that for some patients sex reassignment surgery is the treatment of choice. Those clinicians who espouse sex reassignment surgery, however, must determine which gender dysphoric patients are the best candidates for the procedure.

In spite of the many clinical research studies of transsexualism, very little is actually known about the medical-surgical and social-psychological effects of sex reassignment surgery. Many questions are left unanswered. For example, which, if any, patients derive the most benefit from sex reassignment surgery? What data support the continued use of sex reassignment surgery as a treatment regimen? What is the crucial test for determining the prescription of sex reassignment surgery?

To my knowledge there has not been a single comprehensive review of the published sex reassignment studies or an analysis of their results. It is the aim of this paper to address these issues by reviewing and examining the historical roots, assumptions, and findings of the major studies. In this context, suggestions for future research strategies and directions for treatment will be made.

SEX REASSIGNMENT SURGERY THROUGH THE 1960S

The historical, cultural, anthropological, and literary development of sexual transformation and surgery is well documented (18–21). Green (22) cited incidences of sexual transformation procedures in early Greek and classical history, the Renaissance, and modern times; cultural examples from American Indian tribes as well as Indo-European and Asiatic cultures are included. Throughout history instances of autocastration and genital mutilation, the result of an individual's intense desire to change sex, have been reported (23). Translating the desire for sex reassignment surgery into a reality, however, required the advances of modern surgical technology and hormonal procedures. In the following reviews of surgery follow-up, the studies are reported chronologically.

While Abraham (24) reported on the first sex reassignment surgery of two male transvestites in 1931, it was not until the publication of Lilly Elbe's autobiog-

raphy (25) that sex reassignment surgery became a popular and practical solution for the transsexual's dilemma.

The first significant postsurgical findings were reported by Hertz and associates (10). That study investigated the postsurgical functioning of 2 male and 3 female transvestites (including one who changed back to his male role after 7 years). The mean postsurgical period was 7.8 years (range=3.5 to 16 years). Follow-up data on 4 patients' social-emotional states suggested satisfactory outcome. The evaluative criteria were based on the impressions of the investigators. A review of the findings suggests some discrepancies with usual clinical assessment in that one patient who was judged to have a satisfactory outcome was actually a depressed drug addict who engaged in homosexual prostitution.

The beginning of serious research in the field was initiated with the publication of Benjamin's classic follow-up study (1) of postoperative transsexuals. Of 73 men and 20 women who underwent surgery, 85% of the men (N=62) and 95% of the women (N=19) showed satisfactory outcomes. These figures were derived by classifying postsurgical patients into three categories: unsatisfactory, good, and satisfactory. The assignments were based on impressionistic evidence, patients' self-reports, and anecdotal material about the patients' postsurgical social-biological-psychological status. There were no attempts to obtain standardized data from each patient; no demographic data were provided. The overall 87% improvement figure included patients in both the good and satisfactory groups.

Money and Brennan's study (26) of 6 postsurgical women corroborated Benjamin's findings. They concluded that "the evidence to date is that sex reassignment does indeed improve the human condition of the afflicted individual." However, neither of these studies separated the male and female groups on any basis whatsoever. Since most theoreticians regard female transsexualism as diagnostically and dynamically distinct from male transsexualism (27), one would expect that such a methodological error could lead to faulty conclusions.

In his 1968 review (28) of the world literature on 121 cases, Pauly concluded that a group of transsexuals who underwent sex reassignment surgery was 10 times more likely to have a satisfactory outcome, in terms of social and emotional status, than a group who did not. These findings have provided the bedrock for continued support of sex reassignment surgery.

Randell (2) reported postoperative results on 29 men and 6 women (postsurgical follow-up ranged from 3 months to 7 years). According to the male and female adjustment ratings (including acceptability as a male or female, subjective satisfaction, social adaptation, and physician's assessment), 72% of the men and 83% of the women had satisfactory outcomes. Although 2 men committed suicide, Randell concluded that the

patients demonstrated lessened environmental conflicts, significantly decreased levels of anxiety and depression, and improvements in family relations and employment.

The studies of the 1960s ended on a less positive note as Golosow and Weitzman (29) reported on a single case involving a man who was hospitalized with severe depression and regressed behavior 15 months after sex reassignment surgery. The patient had been provided with sexual surgery despite the lack of a life-long gender conflict. Benjamin (1) had previously described a case of a 56-year-old man who expressed regret after surgery and was later reassigned back to his male role.

Money and Primrose (30) reported that none of their 12 postoperative male transsexuals exhibited a maternal response. This finding was amplified by Newman and Stoller (31), who hypothesized that male transsexuals are not capable of achieving womanhood, since they have not experienced the usual developmental pathways and oedipal conflicts of biological girls and only exhibit surface-shallow female characteristics. They concluded that although surgery may change a person's secondary sexual characteristics, the inner male or female identity remains untouched. Unfortunately, no further analyses of the inner psychological feelings of postoperative transsexuals were performed.

Summary

With one exception the follow-up studies up to and throughout the 1960s focused entirely on gross social-psychological measures of improvement. The consensus of these studies was that sex reassignment surgery was the treatment of choice for transsexualism. In spite of a few negative outcomes involving suicide (2), psychiatric disturbances (30), and role re-reversal (1), most investigators were optimistic about sex reassignment surgery. Citing an 80%–90% cure rate for sex reassignment surgery, investigators generally accepted the fact that traditional psychiatric intervention was useless with transsexuals and that sex reassignment surgery was the treatment of choice for transsexualism. However, clinicians outside the area of transsexual research were not so accepting of these conclusions (32).

SEX REASSIGNMENT SURGERY THROUGH THE 1970S

Throughout the 1970s increasing numbers of patients sought sex reassignment surgery. Many of these patients were secondary transsexuals who, under stress, expressed a regressive wish for sex reassignment surgery. Spurred on by changing views of societal sex roles, large numbers of patients were given external support to change their sex rather than to

understand the nature of their psychological distress. Moreover, lacking a formal schema to diagnose gender dysphoric conflicts and lacking standards of medical-surgical care, the profession of psychiatry was unprepared to adequately respond to the transsexual's dilemma. In addition, since sex reassignment surgery was available to almost any self-labeled transsexual who could pay the fee and the surgery was often performed secretly, few of them were available for follow-up. There was little that psychodynamically oriented psychotherapists could do to intervene using psychological methods.

In spite of the many difficulties outlined, the initial studies of the results of sex reassignment surgery in the 1970s widened the criteria for investigating the postsurgery patient and contributed significantly to advances in our knowledge of gender identity disturbances.

In the apparently first published study of the 1970s, Money and Ehrhardt (33) investigated 17 men and 7 women and compared the patients' preoperative and postoperative adjustment along five dimensions: capacity for a lasting relationship with a partner, adjustment to work, criminality, mental state, and patients' subjective opinion of the result. Only one woman was reportedly dissatisfied with the cosmetic results, but she stated that she would undergo the procedure again. The patients' satisfactory adjustment on all levels led to the conclusion, "If one is able to stipulate specific criteria for sex reassignment surgery, then it can be seen that the outcome of sex change, that is, the psychological and social situation of transsexuals, is oftentimes better than worse" [my translation]. The conclusion was somewhat illusory in that no universally acceptable criteria for patient selection were provided.

In the second study of the 1970s, Hoenig and associates (34) reviewed the literature on sex reassignment surgery and reported on a follow-up study of 8 of their own patients (5 men and 3 women). One of the women and 4 of the men were judged to be psychiatrically disturbed; 1 of the men had had a leucotomy. Although 1 patient was judged to have a poor outcome, none of the patients expressed regret over the surgery. The 12% failure rate supported the authors' conclusion that "the treatment helps the majority of patients both subjectively and objectively . . . but the operation can in no sense be regarded as a cure." This was the first study to acknowledge the high incidence of psychopathology among postoperative transsexuals and challenged the notion that sex reassignment surgery could cure the transsexual's distress. Indeed, 2 years later Money and Wolff (35) reported on a male transsexual whose postoperative depression was so severe that he was later reassigned to his male role. They attributed the poor results to a deficient presurgical evaluation. The possibility of surgery's proving harmful has been supported by a number of single case studies (36–38).

At Northwestern Medical Center Arieff (39) studied 14 men and 4 women for 5 years after surgery. The group included 3 blacks and 1 Oriental. Nine patients (50%) demonstrated better social adjustment; 2 patients (11%) had better vocational adjustment; 5 (28%) improved their relationships by getting married; and overall conditions worsened for 2 patients (11%). While the amount of overlap among the groups is unclear, it is apparent that the majority of patients were not cured.

While Gandy (40) supported the use of objective criteria to assess outcome (social and economic improvement and subjective feeling of happiness), his report of the preliminary findings of the Stanford group indicated that surgery on demand would probably be disastrous. Unfortunately, he did not elaborate on this view.

On the other hand, Ihlenfeld's review (41) of Benjamin's findings indicated that most adult transsexuals achieved good results with sex reassignment surgery (although 5 of the patients died from mysterious drug-related accidents). Ihlenfeld's optimism about sex reassignment surgery led him to argue for the possible surgical benefits for transsexual patients in their 50s and 60s.

Hastings and Blum (42) reported on 25 men who received sex reassignment surgery at the University of Minnesota. Using a college grading system (A, B, C, and D), they rated patient outcome on sexual, economic, and social variables. Twelve patients experienced multiple orgasms; 12 patients were marginally self-supportive; 8 were on welfare; 10 patients were married, including 6 who had remained with their original spouses. Despite 1 who attempted suicide, satisfactory adjustment was reported for all the patients. There was no indication of the degree of overlap among the variables of change investigated. One case warrants reporting in detail because of its consequences. In that case a patient who mutilated his genitals and had a prison record was eliminated as a surgical candidate. The patient's threat of suicide, however, prompted Hastings and Blum to bring in six outside judges from Minneapolis. The judges urged the clinic to perform surgery; 1 month after surgery the patient reverted to living as a man. In another instance one of their clinic staff members recommended 5 psychopaths for sex reassignment surgery to see if this procedure would cure their character problems. He eventually concluded that sex reassignment surgery is not a cure for psychopathy.

Laub and Fisk (43) reported on 74 patients—50 men and 24 women—who received sex reassignment surgery. (At the 1980 APA annual meeting the Stanford team updated their statistics, reporting that 131 men received vaginoplasty, 75 women received phalloplasty, and 86 women received mastectomies.) Thirty-eight of the men had surgery at Stanford. They evaluated patients' employment, social-psychological, and

sexual adjustment using a grading system similar to that used by Hastings and Blum. Five patients were unavailable for follow-up. Although 1 patient regretted having surgery and another committed suicide, they concluded that sex reassignment surgery did not significantly harm any patients. They reported significant improvement in all but the psychological areas of functioning. This study is important because the surgical group included nontranssexuals, e.g., effeminate homosexuals and transvestites, and the researchers separated the psychological from the social domain. The term "gender dysphoria syndrome" was used to describe patients who requested sex reassignment surgery. Laub and Fisk concluded that "transsexuals are not the only group that can benefit from this type of surgery." Preoperative behavioral adaptation to the new gender role, not psychiatric diagnosis, was found to be the best predictor of postsurgery outcome. This was apparently the first study that mentioned sex reassignment surgery as a treatment for nontranssexual disorders.

At the Second Interdisciplinary Symposium on Gender Dysphoria Syndrome, Fisk (44) reported on the postsurgical follow-up of eight men who had been diagnosed as psychotic or schizophrenic (with delusions focusing on sexual identity). Their postoperative improvement was so marked that Fisk labeled them "eight spectacular cases"; the number has recently been reduced to 5 (45). Fisk felt that sex reassignment surgery could result in remission for some psychotic or schizophrenic individuals whose disturbances focused mainly on sexual identity. Prior to this report, all surgical centers had refused to operate on schizophrenic or psychotic patients. Schizophrenic patients with delusions of sex change had been known to request sex reassignment surgery (46). The suggestion that sex reassignment surgery might prove beneficial for schizophrenic patients represented a major departure from current thinking.

Gottlieb (47) reported on the follow-up of 9 transsexuals, including 1 who was left decorticate secondary to anesthesia, 1 who was postoperatively labeled a "freak," and a 23-year-old male-to-female patient who adopted a lesbian role after surgery. Biber (48) reported on 1 schizoid patient who was in the process of being reassigned back to his biological maleness. In light of these poor outcomes, a well-known author and transvestite, Virginia Prince, suggested that more attention be paid to nonsurgical alternatives for transsexuals, noting that, at least in California, "sex reassignment surgery is a communicable disease" (personal communication, 1977).

Hore and associates (49) reported on 16 English transsexuals who were studied for 6 to 18 months after surgery. For 11 patients (69%) the surgery was judged beneficial, i.e., they felt more feminine, had increased confidence, and were emotionally and sexually better adjusted; 2 of them married. However, 5 patients

expressed dissatisfaction; 3 were dissatisfied with the cosmetic results, and 2 did not feel completely female. Eight of the 11 patients (73%) had long histories of psychiatric illness. These results were consistent with the findings of Hoenig and associates (34).

Money (50) reported on one of the youngest patients to have sex reassignment surgery. The patient was a male twin whose penis had been amputated secondary to an accident during circumcision. The child was surgically revised to a female at age 17 months and is being raised as a girl. Recent follow-up suggests a good outcome.

In a study conducted at Vanderbilt University, McKee (51) reported on 7 men and 4 women who had received surgery but did not provide detailed notes on their social-psychological condition.

Walinder and Thuwe (3) conducted the most comprehensive follow-up study to date. They examined the social-psychiatric histories of 24 reassigned transsexuals; detailed histories for each patient were included in the report. Eleven men and 11 women were available for follow-up; 2 men were not. They expanded on Money and Ehrhardt's five follow-up criteria (33) by elaborating on the social aspects, e.g., place of residence, Social Security benefits, alcoholism, criminality, periods of certified sickness, and disability pensions. Other adjustment criteria included sexual life (propensity and strength), housing conditions, attitudes of relatives, work records, patients' subjective opinion, and investigators' assessment (including psychological state and appearance). By studying their patients at least 3 years postoperatively, they tried to eliminate the usual immediate postsurgery halo effect. They found that the biological females generally had a better outcome; 2 men (18% of the men) regretted having surgery. Overall, 91% of the women and 69% of the men had satisfactory outcomes. These results are consistent with those of Benjamin (1), Randell (2), and Money and Ehrhardt (33). The small sample size precluded the possibility of obtaining statistically significant presurgery and postsurgery differences. Walinder and Thuwe concluded,

Taking men and women together, the outcome was clearly favorable in approximately 80% of the cases. The proportion of unsuccessful cases in our series is about the same as that found by Hoenig et al in a review of previously published follow-up cases. When we considered the severe suffering and the many difficulties experienced by untreated transsexuals in various fields of life, the treatment programme appears to be fully justified both medically and ethically.

Sturup (52) clinically evaluated 8 of 10 patients up to 19 years after sex reassignment surgery. Two had died; half of the remaining patients exhibited severe adjustment problems. All but 1 reported psychological problems, including difficulty at work, sexual maladjustment, depressive ideation, suicidal behavior, fa-

miliar rejection, continuous living in the male role, and reactive psychosis. In spite of these difficulties, all of the patients were satisfied with the surgical results.

Lothstein (53) studied two groups of patients after sex reassignment surgery. Group I, consisting of 7 biological males, had sex reassignment surgery before the establishment of a gender identity clinic at Case Western Reserve University Medical School. Group II (8 biological males and 6 biological females) had surgery after intensive evaluation and long-term psychological and medical treatment. The average postsurgery time span was 1.9 years (range=0.5 to 3.5 years). Systematic data were gathered on each patient in group II prior to surgery. Patients completed a 59-item questionnaire focusing on sexual, psychological, environmental, economic, parental, family, medical, and social adjustment and functioning. This was apparently the first research study in which patient data were systematically collected and each patient was required to participate in intensive psychological treatment.

The results suggested moderate postsurgical social and sexual gains accompanied by marked depression and psychological confusion. However, all patients reported being subjectively satisfied with the surgery. It was concluded that character structure and neurotic functioning are not permanently altered by sex reassignment surgery. Moreover, all patients should be routinely provided counseling and/or psychotherapy to help them adjust to their new social-psychological status. Sex reassignment surgery does not facilitate the patient's psychological integration of gender role and identity; this integration requires psychotherapy. A major conclusion of this study was that all preoperative and postoperative gender dysphoric patients should undergo psychotherapy.

In the most controversial study, Meyer and Reter (11) studied 100 patients who applied for sex reassignment surgery at the Johns Hopkins Gender Identity Clinic. Of these, 34 underwent surgery (24 at Johns Hopkins and 10 elsewhere) and 66 failed to qualify for surgery. Only 15 of the 34 surgery patients (44% of the sample) were available for follow-up; 17 were lost to follow-up and 2 refused to participate. Of the 66 nonsurgery patients (the control group), 35 (53%) were available for follow-up and 31 were lost to follow-up. In summary, only 50% of the 100 patients were available for follow-up. Fourteen of the 35 nonsurgery patients later received surgery, including 5 patients at Johns Hopkins; the remaining 21 patients were still interested in obtaining surgery. The surgery group (average age=30 years) was studied for a mean of 5.0 years (range=19-142 months); the nonsurgery group was followed for 2 years (range=15-48 months). Four blacks were included in the group.

Since there was no breakdown according to socioeconomic status, education, and race, the effect of interaction among these variables is unknown. All data

except years of schooling were reported in percentages. The measured variables included change of residence; job and educational levels; prior psychiatric treatment; and overall assessment score derived by using an arbitrary scaling method on legal, economic, marriage, cohabitation, and psychiatric histories. Psychotherapy was not provided, and there was little information on psychological functioning. While there were no statistically significant differences among the initial adjustment categories, the trends did suggest that the surgery group showed the greatest changes over time. This finding was not elaborated on. Meyer and Reter concluded that "sex reassignment surgery confers no objective advantage in terms of social rehabilitation—although it remains subjectively satisfying to those who have rigorously pursued the trial period and who have undergone it." As a result of a press release, these findings were used as evidence to close the surgical program at Johns Hopkins. In the last analysis, the decision seemed to be the result of political pressure and not to be based on the empirical findings of the study.

Hunt and Hampson (12) reported on the follow-up of 17 biological males (mean of 8.2 years after surgery). While the patients reported gains in sexual satisfaction, family acceptance, economic functioning, and interpersonal relationships, there were no changes in the incidence of psychopathology. Although none of the patients regretted having the initial surgery, 24% still felt a "driven need for further surgical procedures." The authors concluded that for a select group of transsexuals, "surgery will continue to offer . . . the best means of coping with this dilemma." They cautioned, however, that sex reassignment surgery does not alter personality; the best predictors of postsurgical success are presurgical ego strength and patients' "adjustment during the presurgery period while living in their new gender/sex role."

At the 1980 APA annual meeting in San Francisco, Satterfield (unpublished study) reported the preliminary findings of a follow-up of the original group described by Hastings and Blum. The 22 postoperative transsexuals included 3 female-to-male patients (average postsurgery period=3.8 years) and 19 male-to-female patients (average postsurgery period=9.2 years). All patients agreed to the interview and assessment and gave favorable responses about the surgery on the structured interview and psychological assessment tasks. Patients were physically examined by a psychiatrist also trained in plastic surgery, were given a battery of psychological tests including the MMPI, SCL-90, and Zung depression inventory, and were asked to complete an elaborate questionnaire. Whenever possible, material from hospital charts and therapy notes was used. None of the patients expressed regrets about having surgery, and all showed "a significant improvement in psychological functioning." A global measure of improvement was derived

based on responses to interview material and psychometric testing. The minimal presurgery screening in the original program made it necessary to base many of the conclusions on post hoc analysis. The relationship between quality of surgical results and good psychological functioning was found to be statistically significant among 16 patients who changed from male to female ($p<.01$).

Summary

The studies of the 1970s and early 1980s challenged the idea that sex reassignment surgery was a cure for transsexualism. While prior findings that sex reassignment surgery leads to better socioeconomic functioning for some patients were given additional support, gender dysphoric patients were characterized as having severe psychopathology that was unaltered by sex reassignment surgery. As an outgrowth of these studies, it was suggested that candidates for sex reassignment surgery receive preoperative and postoperative counseling and/or psychotherapy. Sturup (52) supported this idea, noting, "In some of the early cases the reluctance on the part of therapists to adopt an active therapy [had] been too great."

While some of the postsurgery studies attempted to identify predictive variables for use in patient selection for surgery, no uniform diagnostic criteria were identified or employed. Despite attempts to address the serious methodological problems of the earlier studies, the studies of the 1970s ended on a sour note. The media distortion of the Johns Hopkins results suggested that sex reassignment surgery was of little or no benefit—a conclusion unsubstantiated by the data but one that has become the focus of much debate.

DISCUSSION

Methodological Problems of Follow-Up Studies

Most of the 785 postsurgical patients (approximately 596 men and 189 women) who have been studied are self-selected; they have voluntarily enrolled in a hospital- or university-based gender identity clinic. Their intense surveillance includes an extended psychological and behavioral evaluation that often lasts over 1 year. A review of follow-up studies suggests that gender clinics' surgical requirements can be met only by patients who can cope with delayed gratification and frustration; they may even be somewhat passive and compliant. However, these patients represent only a small percentage of the estimated 30,000 self-labeled transsexuals, of whom 3,000–10,000 have reportedly received sex reassignment surgery. The vast majority of gender dysphoric patients obtain sex reassignment surgery on a fee-for-service basis without benefit of a prolonged diagnostic evaluation. As a group they are probably more impulsive, impatient, anxious, and demanding of sex reassignment surgery

than are those who enroll in university-based clinics. Many of these patients are probably secondary transsexuals who feel surgery will relieve their emotional distress. Unless these patients need additional surgery, they will be generally unavailable for follow-up. The lack of baseline data on their presurgical psychological states makes it impossible to evaluate the changes caused by sex reassignment surgery. Moreover, neither the surgeons who perform sex reassignment surgery on demand or their patients seem to be interested in understanding the psychological roots of transsexualism.

In order to apply the results of these follow-up studies to the wider group of postsurgical transsexuals, we must determine whether those who have been studied represent an adequate cross-section of all sex reassignment surgery patients. If not, this sampling bias is a primary methodological problem inherent in all of the published studies on sex reassignment surgery. A review of those studies reveals other serious methodological problems, including a lack of universally accepted criteria for diagnosing gender dysphoria and determining suitable candidates for sex reassignment surgery; lack of an adequate control group; considerable variability among programs in gender identity clinics as well as in the quality, training, and experience of clinical staff; failure to include basic data on patients' race and age; frequent use of nonoperationalized criteria for improvement, such as patients' subjective feelings of happiness; use of college grade level systems for evaluating outcome; failure to provide data on the length of time between evaluation, surgery, and follow-up; failure to use uniform diagnostic labels; failure to use standardized clinical instruments to assess patients, even within a single study; limitation of clinical investigation to gross, social-psychological variables; failure to include in-depth psychological analysis; use of hypothetical post hoc analyses to provide missing presurgical data; and use of biased evaluators to interpret outcome data. This list is by no means exhaustive.

These methodological difficulties can be addressed by providing all sex reassignment surgery patients with uniform clinical interviewing, questioning, evaluation, and treatment schedules and follow-up questionnaires. To date only one follow-up study has attempted to fulfill some of these requirements (53). While there are still no uniform criteria for patient selection for sex reassignment surgery, the Harry Benjamin International Gender Dysphoria Association has formulated some elementary standards of care for transsexuals (16). This work needs further elaboration before it can become a model. Researchers can begin to overcome the difficulty of small samples by combining data from several clinics. This practice would obviously necessitate the use of standardized clinical instruments, clinicians with similar training backgrounds, and uniform criteria for evaluation and treat-

ment. The crucial problem, however, is the availability of patients for follow-up.

Overview of Findings: Two Decades of Research

A review of the studies on sex reassignment surgery reveals a diversity of factors used to investigate postsurgical patients (appendix 1). Results differ depending on which factors are focused on. For example, those clinicians who used global ratings found a positive change rate of 68%–86% in the patients' overall social-emotional functioning. On the other hand, those who used more discriminative evaluation criteria (focusing on psychological variables) not only failed to replicate these success rates but occasionally reported negative outcome in the socioeconomic area of postsurgical functioning. All of these findings must be viewed in light of the various methodological weaknesses of the studies reported earlier.

Appendix 2 summarizes the positive and negative findings of the studies of sex reassignment surgery for over two decades of research. Although several categories of change have remained constant, the more recent studies have focused on negative psychological functioning after surgery. These findings may be directly related to the increased number of surgical procedures performed. However, previous researchers had also sorely neglected the measurement of psychological functioning after surgery. Perhaps the early postsurgery studies failed to report on psychological dysfunction because the evaluators, who were physicians and surgeons, lacked clinical psychiatric expertise. Indeed, many of them believed that sex reassignment surgery would completely change the patient's personality structure for the better—thereby abrogating previous psychological disturbances. While no single study has intensively evaluated the global psychological status of postsurgery patients, the recent focus on psychological variables and especially psychotherapy (54–56) represents an important direction for research.

An analysis of those postsurgery studies which focused on the patient's psychological functioning revealed considerable discrepancy. This was partially related to the definition of "psychological functioning." The term (which has been used to describe anything from the frequency of psychiatric visits to responses to personality tests and data from psychotherapy) needs to be refined in terms of acceptable clinical criteria. Moreover, the status of patients' self-reports about their subjective satisfaction or happiness with that procedure needs to be reconsidered as the sine qua non of outcome.

In a preliminary way the studies of the 1970s challenged the notion that sex reassignment surgery led to complete psychological integration of the patient's new gender role and identity. While sex reassignment surgery may have provided the transsexual with artificial genitals, it did not provide the patient with the

developmental history of a man or woman necessary for being a male or female, e.g., for the man, unique identifications with the mother, typical female preoedipal and oedipal development, experience of participation in a girls' social group, menses, and continued social-psychological reactions to female development. While psychotherapy can be of considerable benefit for the gender dysphoric patient, it cannot provide the internal structures of maleness or femaleness necessary for internalizing cross-gender identification. These identifications are primary structures established during early childhood and are not to be gained through sex reassignment surgery or psychotherapy. One must not confuse cross-gender social role adaptation with one's internalization of gender identifications.

What, then, does happen after surgery with the gender dysphoric patient? In determining the success of sex reassignment surgery, should one use only the results of medical-surgical procedures (i.e., whether the new genitalia appear realistic and are functional)? Or ought one to be concerned about the patient's psychological status? While sex reassignment surgery is an invasive and irreversible procedure, presumed by some investigators to have a negative psychological effect on the patient, many questions are still unanswered by the research. Do postsurgery patients exhibit more or less depression, anxiety, or guilt? Are postsurgery patients more or less suicidal or psychotic? What are the psychological sequelae of male castration and penile amputation and female mastectomies and hysterectomies? While these clinical questions have not been fully answered by researchers, they certainly need to be addressed. While most studies focus on variables that they have related to successful outcome, e.g., social, vocational, economic, and familial variables, future researchers need to refine their questions. In spite of the apparent objectivity of these social variables, they are no less dependent on one's framework of values than more complex psychological variables. For example, is a shy, withdrawn, schizoid low-paid clerk who undergoes sex reassignment surgery and becomes an outgoing, highly successful female impersonator or prostitute (earning a high income and having a wide variety of social relationships) considered a success or failure? What are the criteria used to determine outcome? Bioethical dilemmas such as this need to be addressed.

CONCLUSIONS

The reported 68%–86% success rates for sex reassignment surgery must be viewed cautiously. The lack of long-term follow-up studies makes these statistics misleading. As long as sex reassignment surgery remains a viable treatment modality, it is reasonable to ask how one determines which patients will most

benefit from sex reassignment surgery. Currently the selection criteria available are informally culled from clinical guidelines established by the various gender identity clinics nationwide. These criteria might be used in establishing universally acceptable guidelines for referring a patient for sex reassignment surgery. In order for these guidelines to be effective one would have to ensure that sex reassignment surgery was done only by skilled surgeons in highly selected university-based clinics that could provide follow-up. Essentially, this would mean limiting all sex reassignment surgery to a select number of hospitals in the United States. While this raises certain ethical issues, it is clear that current abuse comes from the widespread availability of sex reassignment surgery and not the other way around.

While sex reassignment surgery has definite medical-surgical and psychological limitations, there is insufficient evidence to warrant its termination. Indeed, there is evidence suggesting that some gender dysphoric patients benefit primarily from sex reassignment surgery (reference 12 and an unpublished study by S. Satterfield). The problem is how to identify these patients. The growing body of literature implicating a neurohormonal hypothesis in gender dysphoria (57) also cannot be used to justify sex reassignment surgery, since the disorders of gender dysphoria are primarily psychological disorders, and it is rare to substantiate a neurohormonal disorder for any given case. Most gender dysphoric patients, however, are secondary transsexuals (58) who can benefit from various modes of psychotherapy (54–56). To date the evidence suggests that many patients who would have otherwise undergone sex reassignment surgery may adjust to a nonsurgical solution through psychotherapy (7). Moreover, many misdiagnosed gender dysphoric patients need psychotherapy, not surgery (59). Indeed, sex reassignment surgery should only be considered as the last resort for a highly select group of diagnosed gender dysphoric patients. It is imperative that legislators who wish to provide Medicaid payments for transsexual surgery understand that, in most cases, alternatives to sex reassignment surgery are available to patients. Physicians wishing to refer a patient for evaluation for sex reassignment surgery should be allowed to make use of the many specialized gender dysphoria clinics that are currently in operation.

As clinicians learn new ways to diagnose and treat transsexualism, either sex reassignment surgery will be abandoned as a routine treatment modality (reserved for only a few select patients) or new predictive variables for choosing suitable patients for sex reassignment surgery will be established. Future research needs to focus on long-term follow-up studies maximizing the use of those methodological issues outlined in this paper which will enhance our understanding of the etiology and the course of gender identity disorders.

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APPENDIX 1. Factors Investigated by Various Studies of the Results of Sex Reassignment Surgery

1. Medical
2. Surgical
 - a. Patients' evaluation
 - b. Physicians' independent assessment
3. Psychological
 - a. Psychometric scales
 - b. Psychiatric interview
 - c. Number of psychiatric contacts
 - d. Number of psychiatric hospital admissions
 - e. Suicide attempts
 - f. Evidence of psychiatric symptoms
4. Environmental
 - a. Vocational and economic status
 - b. Living conditions
 - c. Income, amount and source
 - d. Criminality
5. Ability to pass in the new role successfully
6. Use of drugs and alcohol
7. Family and marriage
 - a. Capacity for a lasting relation with partner
 - b. Parental support
8. Sexual adjustment
9. Patients' subjective feelings about the surgical result
10. Patients' subjective feelings of happiness
11. Overall assessment of result—global ratings
 - a. Social rehabilitation
 - b. Social-psychological
 - c. Social-economic-psychological
 - d. Social-biological
3. Social adaptation
 - a. Lessened conflict with the environment
 - b. Improved family relations
 - c. Increased capacity to work, new and better job status
4. Physicians' assessment of surgical results
5. Psychological changes
 - a. Decreased levels of anxiety
 - b. Decreased levels of depression

Negative factors

1. No maternal response
2. Failure to develop an inner schema of femaleness
3. Suicidal threats, gestures, and behaviors
4. Psychiatric disturbances, including drug addiction and depression
5. Role re-reversal, requests for re-assignment
6. Homosexual prostitution

1970s**Positive factors**

1. Subjective satisfaction with sex reassignment surgery
2. Increased sexual satisfaction
3. Remission of certain forms of schizophrenia
4. Increased vocational-economic adjustment
5. Improved psychological status correlated with good surgical results
6. Patient's subjective feelings of happiness
7. Lessened conflict with the environment
8. Decrease in acute symptoms

Negative factors

1. Requests for more surgery
2. Increased psychiatric illness (73% in one study)
3. No change in psychological status
4. Poor cosmetic appearance
5. Requests for reversal of surgery
6. Massive lawsuits
7. Medical problems (e.g., one patient left decorticate, another having a leucotomy)
8. Patient left in "freak status," cannot pass in new role or adopts a lesbian status after male-to-female sex reassignment surgery
9. Suicidal threats, gestures, and behaviors

APPENDIX 2. Summary of Positive and Negative Factors of Studies of the Results of Sex Reassignment Surgery Over Two Decades**1960s****Positive factors**

1. Acceptability as a man or woman
2. Subjective satisfaction with surgery